

Metabolic & Body Composition Testing Summary

Prepared for Physician Review and Clinical Discussion
VQ Labs / CardioCoach | February 3, 2026

Purpose of This Document

This summary compiles results from three objective metabolic tests performed on the same date (RMR, VO2 Max, and DEXA body composition) alongside relevant clinical context. It is intended to facilitate an informed discussion with my physician regarding weight loss plateau, body composition changes, metabolic health markers, and current treatment adequacy.

Clinical Context & Relevant History

Item	Detail
Current Weight	250–255 lbs
Peak Weight (~4 years ago)	350 lbs
Total Weight Lost	~100 lbs
Current GLP-1 Medication	Semaglutide (Wegovy) — ongoing
BED Medication	Vyvanse 70mg daily (~5 years)
Weight Loss Stall Duration	Approximately 18 months
Binge Eating Disorder (BED)	Active — inadequately controlled at current dose
Typical binge day caloric intake	4,000+ kcal (most days)
Typical non-binge day intake	~2,000 kcal
Kidney Function	Stage 2 CKD range — under monitoring

1. Resting Metabolic Rate (RMR) Results

Key Numbers

Metric	Value	Context
RMR (Resting Metabolic Rate)	2,608 kcal/day	Faster than average for height/weight
Maintenance TDEE (estimated)	~3,390 kcal/day	Includes professional activity
Resting RER (Respiratory Exchange Ratio)	0.93	Clinically elevated — see flag below

Fuel Mix at Rest	77% Carbohydrates / 23% Fat	Ideal resting RER is 0.70–0.85
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⚠ CLINICAL FLAG: Elevated Resting RER (0.93)

A healthy resting RER falls between 0.70–0.85, indicating predominantly fat oxidation at rest. Adam's resting RER of 0.93 indicates he is burning 77% carbohydrates and only 23% fat at complete rest. This pattern is consistent with **metabolic inflexibility and possible insulin resistance**.

Suggested workup: Fasting insulin, HOMA-IR index, HbA1c (if not recently done).

Caloric Balance Analysis

Based on the measured TDEE of ~3,390 kcal/day:

Scenario	Est. Daily Intake	vs. TDEE	Weekly Result
Binge day (most days)	4,000+ kcal	+600 surplus	Weight gain or maintenance
Good day	~2,000 kcal	-1,390 deficit	~0.4 lb loss
4 binge / 3 good days per week	~22,000 kcal	~-500 deficit	~0.1 lb loss — effectively stalled

Primary conclusion: The Binge Eating Disorder is the dominant driver of the weight loss plateau, functionally negating the caloric effect of Semaglutide on most days.

2. VO2 Max & Exercise Metabolism Results

Key Metrics

Metric	Value	Classification
VO2 Max	30.8 mL/kg/min	Low (for 45-year-old male)
Aerobic Threshold HR	113 bpm	At 4.0 mph, flat
Anaerobic Threshold HR	146 bpm	At 6.0 mph, flat
Peak HR	158 bpm	—
Max Caloric Burn	1,078 kcal/hr	At peak effort

Fat-Burning Zone Analysis (from Stage Averages)

Stage	Heart Rate	Speed	Fat %	Carb %	Kcal/hr
1	100 bpm	3.0 mph	100%	0%	315
2 (Aerobic Threshold)	113 bpm	4.0 mph	100%	0%	585

3	136 bpm	5.0 mph	36.5%	63.5%	910
4 (Anaerobic Threshold)	146 bpm	6.0 mph	0%	100%	1,029

✓ KEY FINDING: Optimal Fat-Burning Zone is HR 88–113 bpm (brisk walk / very easy jog)

Adam's body burns **100% fat** at heart rates below 113 bpm (Stages 1–2). This is his personalized Zone 2 range. Extended cardio in this zone (45–60 min daily) burns purely from fat stores and is well-supported for improving metabolic flexibility and insulin sensitivity.

Practical prescription: Brisk walking or very light jog at 3–4 mph, HR monitored to stay under 113 bpm.

Note: The low VO2 Max rating (30.8) is expected given current weight and fitness level, and will improve substantially with consistent Zone 2 training. It is not a ceiling — it is a starting point.

3. DEXA Body Composition Results

Overall Composition — Change Since Baseline (March 2023 vs. February 2026)

Metric	Mar 2023	Feb 2026	Change
Total Body Weight	293.3 lbs	255.0 lbs	-38.3 lbs
Total Fat Mass	120.3 lbs	91.2 lbs	-29.1 lbs
Lean Tissue Mass	165.2 lbs	156.3 lbs	-8.9 lbs
Body Fat %	41.0%	35.8%	-5.2%
Visceral Fat	Not measured	4.67 lbs (136.94 in ³)	—

⚠ CLINICAL FLAG 1: Lean Mass Loss (-8.9 lbs over ~3 years)

Of the 38.3 lbs lost, 8.9 lbs (23%) was lean tissue — primarily muscle. Ideal lean-to-fat loss ratio is under 15–20%. This rate of lean loss is consistent with GLP-1 use without concurrent resistance training and may be contributing to reduced resting metabolism over time.

Recommended discussion: Protein targets, resistance training protocol, and whether current Semaglutide dosing should be adjusted to prioritize lean mass preservation.

⚠ CLINICAL FLAG 2: Bone Mineral Density Decline (-5.1% in ~3 Years) — PRIORITY ITEM

BMD dropped from 1.442 g/cm² (March 2023) to 1.368 g/cm² (February 2026) — a statistically flagged 5.1% decline (marked with asterisk in original report). While still at the 82nd age-matched percentile overall, this rate of decline in a 45-year-old male warrants investigation.

Possible contributing factors: Significant weight loss (reduced mechanical bone loading), GLP-1 medication effects (emerging literature), low ferritin / nutritional deficits, insufficient resistance training.

Requested discussion: Vitamin D and calcium status, DXA bone-focused follow-up timeline, and whether any intervention (pharmacologic or nutritional) is warranted.

Segmental Body Fat Distribution

Region	Body Fat %	Fat Mass	Clinical Relevance
Trunk	44.3%	55.1 lbs	High — metabolic risk zone
Android (Abdomen)	50.2%	11.3 lbs	Elevated — apple-shape pattern
Gynoid (Hips/Thighs)	31.5%	10.7 lbs	Moderate
Arms	33.3%	11.2 lbs	Elevated
Legs	26.6%	22.1 lbs	Moderate

The high android-to-gynoid fat ratio and elevated trunk fat are consistent with the elevated resting RER finding and suggest ongoing visceral adiposity risk. Both GLP-1 therapy and Zone 2 cardio are particularly effective at reducing visceral fat preferentially.

Lean Mass Symmetry

Arms: Perfectly symmetric (0.0 lb difference). Legs: 1.6 lb left-greater-than-right asymmetry noted (was symmetric in 2023). Not clinically alarming in isolation but worth monitoring if lower limb symptoms develop.

Priority Discussion Items for This Visit

- Binge Eating Disorder — Inadequate Control at Current Treatment**
 - Vyvanse 70mg (max dose, ~5 years): self-reported reduction from ~5,500 to ~4,000 kcal per binge episode
 - 4,000+ kcal binge days occur most days — this is the primary driver of the weight plateau
 - Requesting evaluation: Is Vyvanse still adequately controlling BED? Adjunctive options? (Topiramate, Naltrexone)
 - Has not had access to BED-specific therapy (CBT-E / DBT) due to cost — flagging as unmet need
- Bone Density Decline — 5.1% Drop in 3 Years (Flagged on DEXA)**
 - BMD: 1.442 → 1.368 g/cm² — asterisked as significant on report
 - Still at 82nd percentile but rate of decline is concerning for age 45
 - Request: Vitamin D / calcium labs, follow-up DEXA timeline, any pharmacologic consideration

3. **Elevated Resting RER — Possible Insulin Resistance**

- Resting RER of 0.93 (normal: 0.70–0.85) — burning 77% carbs at rest
- Pattern consistent with metabolic inflexibility / insulin resistance
- Request: Fasting insulin, HOMA-IR, HbA1c (if not recently measured)

4. **Lean Mass Loss — Muscle Preservation Strategy**

- Lost 8.9 lbs of lean tissue (23% of total weight lost) — above ideal ratio
- Requesting guidance on protein targets and whether Semaglutide dose adjustment could help
- Committed to adding resistance training 2–3x/week

5. **Semaglutide Plateau — Medication Review**

- 18-month weight loss stall on current Semaglutide dose
- Request: Discuss Tirzepatide (Zepbound) as potential switch — dual GIP/GLP-1 mechanism may provide additional benefit
- Discuss whether BED control vs. medication ceiling is primary limiting factor

Personalized Exercise Prescription (from VO2 Test Data)

Based on Adam's actual metabolic test results, the following is the evidence-based exercise prescription:

Zone	Heart Rate	Activity	Goal	Recommended Frequency
Zone 2 (Fat Burn)	88–113 bpm	Brisk walk / light jog 3–4 mph	Fat oxidation, metabolic flexibility	45–60 min, 5–6x/week
Resistance Training	Any	Weights / resistance bands	Lean mass preservation	2–3x/week
Avoid until fitness improves	> 136 bpm sustained	Running, HIIT	Not currently optimal for fat loss	—

Rationale: Stages 1–2 of VO2 test confirm 100% fat oxidation below 113 bpm. Zone 2 cardio also improves mitochondrial density and insulin sensitivity over time, directly addressing the elevated RER finding.

Attached Supporting Documents

- RMR Test Results — CardioCoach / KORR (VQ Labs, 2/3/2026)
- VO2 Max Test Results — CardioCoach / KORR (VQ Labs, 2/3/2026)
- DEXA Body Composition Report — VisionQuest Labs (VQ Labs, 2/3/2026)

Patient: Adam Benson | Date of Birth: November 28, 1980 | Date of Tests: February 3, 2026